

Amendments to the Claims:

The following listing reflects amendments to the claims and replaces all prior versions and listings of claims in this application.

1. (Canceled)
2. (Currently amended) The multiple epitope fusion polypeptide of claim 1 ~~69~~, further comprising a signal sequence.
3. (Currently amended) The multiple epitope fusion polypeptide of claim 1 ~~69~~, further comprising a transmembrane sequence.
- 4-8. (Canceled)
9. (Currently amended) The multiple epitope fusion polypeptide of claim 8 73, comprising an amino acid sequence having at least 80% sequence identity to the contiguous sequence of amino acids depicted at positions 27-448 of the amino acid sequence depicted in ~~Figure 6~~ SEQ ID NO:22.
10. (Currently amended) A polynucleotide sequence encoding the multiple epitope fusion polypeptide sequence of claim 1 ~~69~~ or ~~complements~~ the complement thereof.
11. (Currently amended) A polynucleotide sequence encoding the multiple epitope fusion polypeptide sequence of claim 2 or ~~complements~~ the complement thereof.
12. (Currently amended) A polynucleotide sequence encoding the multiple epitope fusion polypeptide sequence of claim 3 or ~~complements~~ the complement thereof.

13. (Currently amended) A polynucleotide sequence encoding the multiple epitope fusion polypeptide sequence of ~~claim 4~~ claim 71 or ~~complements~~ the complement thereof.

14. (Currently amended) A polynucleotide sequence encoding the multiple epitope fusion polypeptide sequence of claim 5 72 or ~~complements~~ the complement thereof.

15. (Currently amended) A polynucleotide sequence encoding the multiple epitope fusion polypeptide sequence of claim 6 73 or ~~complements~~ the complement thereof.

16. (Currently amended) A polynucleotide sequence encoding the multiple epitope fusion polypeptide sequence of claim 7 74 or ~~complements~~ the complement thereof.

17. (Currently amended) A polynucleotide sequence encoding the multiple epitope fusion polypeptide sequence of claim 8 75 or ~~complements~~ the complement thereof.

18. (Currently amended) A polynucleotide sequence encoding the multiple epitope fusion polypeptide sequence of claim 9 or ~~complements~~ the complement thereof.

19. (Original) A recombinant vector comprising:

- (a) the isolated polynucleotide of claim 10; and
 - (b) at least one control element operably linked to said isolated polynucleotide,
- whereby said coding sequence can be transcribed and translated in a host cell.

20. (Original) A recombinant vector comprising:

- (a) the isolated polynucleotide of claim 11; and
 - (b) at least one control element operably linked to said isolated polynucleotide,
- whereby said coding sequence can be transcribed and translated in a host cell.

21. (Original) A recombinant vector comprising:
(a) the isolated polynucleotide of claim 12; and
(b) at least one control element operably linked to said isolated polynucleotide, whereby said coding sequence can be transcribed and translated in a host cell.

22. (Original) A recombinant vector comprising:
(a) the isolated polynucleotide of claim 13; and
(b) at least one control element operably linked to said isolated polynucleotide, whereby said coding sequence can be transcribed and translated in a host cell.

23. (Original) A recombinant vector comprising:
(a) the isolated polynucleotide of claim 14; and
(b) at least one control element operably linked to said isolated polynucleotide, whereby said coding sequence can be transcribed and translated in a host cell.

24. (Original) A recombinant vector comprising:
(a) the isolated polynucleotide of claim 15; and
(b) at least one control element operably linked to said isolated polynucleotide, whereby said coding sequence can be transcribed and translated in a host cell.

25. (Original) A recombinant vector comprising:
(a) the isolated polynucleotide of claim 16; and
(b) at least one control element operably linked to said isolated polynucleotide, whereby said coding sequence can be transcribed and translated in a host cell.

26. (Original) A recombinant vector comprising:
(a) the isolated polynucleotide of claim 17; and

(b) at least one control element operably linked to said isolated polynucleotide, whereby said coding sequence can be transcribed and translated in a host cell.

27. (Original) A recombinant vector comprising:

(a) the isolated polynucleotide of claim 18; and

(b) at least one control element operably linked to said isolated polynucleotide, whereby said coding sequence can be transcribed and translated in a host cell.

28. (Original) A host cell comprising the recombinant vector of claim 19.

29. (Original) A host cell comprising the recombinant vector of claim 20.

30. (Original) A host cell comprising the recombinant vector of claim 21.

31. (Original) A host cell comprising the recombinant vector of claim 22.

32. (Original) A host cell comprising the recombinant vector of claim 23.

33. (Original) A host cell comprising the recombinant vector of claim 24.

34. (Original) A host cell comprising the recombinant vector of claim 25.

35. (Original) A host cell comprising the recombinant vector of claim 26.

36. (Original) A host cell comprising the recombinant vector of claim 27.

37. (Original) A method for producing a multiple epitope fusion polypeptide, said method comprising culturing the cells of claim 28 under conditions for producing said polypeptide.

38. (Original) A method for producing a multiple epitope fusion polypeptide, said method comprising culturing the cells of claim 29 under conditions for producing said polypeptide.

39. (Original) A method for producing a multiple epitope fusion polypeptide, said method comprising culturing the cells of claim 30 under conditions for producing said polypeptide.

40. (Original) A method for producing a multiple epitope fusion polypeptide, said method comprising culturing the cells of claim 31 under conditions for producing said polypeptide.

41. (Original) A method for producing a multiple epitope fusion polypeptide, said method comprising culturing the cells of claim 32 under conditions for producing said polypeptide.

42. (Original) A method for producing a multiple epitope fusion polypeptide, said method comprising culturing the cells of claim 33 under conditions for producing said polypeptide.

43. (Original) A method for producing a multiple epitope fusion polypeptide, said method comprising culturing the cells of claim 34 under conditions for producing said polypeptide.

44. (Original) A method for producing a multiple epitope fusion polypeptide, said method comprising culturing the cells of claim 35 under conditions for producing said polypeptide.

45. (Original) A method for producing a multiple epitope fusion polypeptide, said method comprising culturing the cells of claim 36 under conditions for producing said polypeptide.

46. (Currently amended) A vaccine composition comprising a pharmaceutically acceptable vehicle and the multiple epitope fusion polypeptide of claim ~~1~~ 69.

47. (Original) A vaccine composition comprising a pharmaceutically acceptable vehicle and the multiple epitope fusion polypeptide of claim 2.

48. (Original) A vaccine composition comprising a pharmaceutically acceptable vehicle and the multiple epitope fusion polypeptide of claim 3.

49. (Currently amended) A vaccine composition comprising a pharmaceutically acceptable vehicle and the multiple epitope fusion polypeptide of ~~claim 4~~ claim 71.

50. (Currently amended) A vaccine composition comprising a pharmaceutically acceptable vehicle and the multiple epitope fusion polypeptide of claim ~~5~~ 72.

51. (Currently amended) A vaccine composition comprising a pharmaceutically acceptable vehicle and the multiple epitope fusion polypeptide of claim ~~6~~ 73.

52. (Currently amended) A vaccine composition comprising a pharmaceutically acceptable vehicle and the multiple epitope fusion polypeptide of claim ~~7~~ 74.

53. (Currently amended) A vaccine composition comprising a pharmaceutically acceptable vehicle and the multiple epitope fusion polypeptide of claim 8 75.

54. (Original) A vaccine composition comprising a pharmaceutically acceptable vehicle and the multiple epitope fusion polypeptide of claim 9.

55. (Original) The vaccine composition of claim 46, further comprising an adjuvant.

56. (Currently amended) A method of producing a vaccine composition comprising the steps of

- (1) providing the multiple epitope fusion polypeptide of claim 1 69; and
- (2) combining said polypeptide with a pharmaceutically acceptable vehicle.

57. (Original) A method of treating or preventing a bacterial infection in a vertebrate subject comprising administering to said subject a therapeutically effective amount of a vaccine composition according to claim 46.

58. (Original) The method of claim 57, wherein said bacterial infection is a streptococcal infection.

59. (Original) The method of claim 57, wherein said bacterial infection causes mastitis.

60. (Original) A method of treating or preventing a bacterial infection in a vertebrate subject comprising administering to said subject a therapeutically effective amount of a polynucleotide according to claim 10.

61. (Original) The method of claim 60, wherein said bacterial infection is a streptococcal infection.

62. (Original) The method of claim 60, wherein said bacterial infection causes mastitis.

63. (Currently amended) Antibodies directed against the multiple epitope fusion polypeptide of claim 1 69.

64. (Original) The antibodies of claim 63, wherein said antibodies are polyclonal.

65. (Original) The antibodies of claim 63, wherein said antibodies are monoclonal.

66. (Original) A method of detecting *Streptococcus* antibodies in a biological sample, comprising:

- (a) reacting said biological sample with a multiple epitope fusion polypeptide under conditions which allow said *Streptococcus* antibodies, when present in the biological sample, to bind to said sequence to form an antibody/antigen complex; and
- (b) detecting the presence or absence of said complex, and thereby detecting the presence or absence of *Streptococcus* antibodies in said sample.

67. (Currently amended) The method of claim 66, wherein said multiple epitope fusion polypeptide ~~is the sequence of claim 1~~ comprises an amino acid sequence having at least 80% sequence identity to the contiguous sequence of amino acids depicted at positions 27-448 of the amino acid sequence depicted in SEQ ID NO:22.

68. (Currently amended) An immunodiagnostic test kit for detecting *Streptococcus* infection, said test kit comprising the multiple epitope fusion polypeptide of claim 1 69 and instructions for conducting the immunodiagnostic test.

69. (New) An immunogenic multiple epitope fusion polypeptide comprising more than one *Streptococcus* GapC epitope from more than one *Streptococcus* species.

70. (New) The multiple epitope fusion polypeptide of claim 69, wherein said more than one *Streptococcus* species is more than one *Streptococcus* species selected from the group consisting of *Streptococcus dysgalactiae*, *Streptococcus agalactiae*, *Streptococcus uberis*, *Streptococcus parauberis*, and *Streptococcus iniae*.

71. (New) The multiple epitope fusion polypeptide of claim 70, comprising GapC epitopes from *Streptococcus dysgalactiae*, *Streptococcus agalactiae* and *Streptococcus parauberis*.

72. (New) The multiple epitope fusion polypeptide of claim 71, wherein said more than one GapC epitopes are separated by a spacer amino acid sequence.

73. (New) The multiple epitope fusion polypeptide of claim 69, wherein said immunogenic polypeptide comprises an epitope from a *Streptococcus* GapC protein corresponding to

(a) the amino acid sequences shown at amino acid positions 62 to 81, inclusive, of SEQ ID NOS: 12, 14, 16, 18 and 20;

(b) the amino acid sequences shown at about amino acid positions 102 to 112, inclusive, of SEQ ID NOS: 12, 14, 16, 18 and 20;

(c) the amino acid sequences shown at about amino acid positions 165 to 172, inclusive, of SEQ ID NOS: 12, 14, 16, 18 and 20;

(d) the amino acid sequences shown at about amino acid positions 248 to 271, inclusive, of SEQ ID NOS: 12, 14, 16, 18 and 20; and

(e) the amino acid sequences shown at about amino acid positions 286 to 305, inclusive, of SEQ ID NOS: 12, 14, 16, 18 and 20.

74. (New) The multiple epitope fusion polypeptide of claim 9, further comprising a signal sequence.

75. (New) The multiple epitope fusion polypeptide of claim 74, wherein said signal sequence comprises the amino acid sequence depicted at positions 1-26 of SEQ ID NO:22.